

Appl. No.: 10/523,474
Amdt. Dated 1/16/2008
Reply to Office Action of September 27, 2007

Amendments to the Drawings:

The attached sheets of drawings (see Appendix) include amended Figures 3, 12, and 13. The amendments to the drawings are fully supported by the application as filed and do not introduce new matter.

REMARKS/ARGUMENTS

The Objection to the Drawings Should Be Withdrawn

The Office Action indicates that Figures 3D, 12, and 13 are objected to because the figures are not clear. Applicants submit amended Figures 3, 12, and 13 as an Appendix. It has come to the attention of the Applicants that, apparently due to a corrupted electronic file, the upper and lower sections of the photographs of the gels pictured in originally submitted Figures 3A-3C and 3E were reversed. Applicants submit corrected Figure 3 with Figures 3A-3C and 3E in their proper orientation. The corrected figure corresponds to the description of Figure 3 provided on page 14 at lines 12-17 and the description of Example 1 (on page 28-30). For example, on page 30, at lines 7-10, the specification refers to a 2638 bp band depicted in Figures 3B and 3C. As originally filed, it appears that Figures 3B and 3C lack a band of this length. However, in the corrected drawing, the 2638 bp band is evident in Figures 3B and 3C. Therefore, the amendments to Figure 3 are fully supported by the application as filed. Additionally, corrected Figure 3 provides a clearer representation of originally filed Figure 3D, as suggested by the Examiner.

Resubmitted Figures 12 and 13 are unaltered from their original form. Applicants have simply submitted a clearer copy of the original figures. Considering that the content of newly submitted Figures 3, 12, and 13 does not differ from the originally submitted figures, Applicants respectfully submit that no new matter has been introduced by way of these amendments.

The Objections to the Specification Should Be Withdrawn

The Office Action indicates that the specification is objected to for various informalities as discussed below.

The Examiner has objected to the Abstract as not being descriptive of the claimed invention. The Abstract has been amended as recommended in the Office Action.

The specification has been objected to for lacking sequence identifiers, as required by 37 C.F.R. 1.821 through 1.825. Applicants have amended the specification to include all necessary sequence identifiers, as recommended in the Office Action.

In addition, Applicants have corrected a typographical error within the paragraph that begins on page 30 at line 11. Applicants have replaced the reference to Figure 3D with Figure 3E (see page 30, line 18). One of skill in the art would understand this to be a typographical error upon comparing the content of Figure 3 and the description provided within the cited paragraph, along with the corresponding description of the figure on page 14 at lines 12-17.

The amendments to the specification are purely formal in nature and do not constitute new matter.

Claims Free of the Prior Art

Applicants respectfully acknowledge that the Examiner has determined that claims 2, 11, 16, and 17 are free of the prior art. Applicants note that newly amended claim 1 incorporates the limitations of claim 16. Accordingly, Applicants respectfully submit that claim 1 and claims that depend therefrom are free of the prior art. In addition, Applicants present herein new independent claims 26 and 27, which are identical in scope to pending claims 2 and 17, respectively. Therefore, Applicants respectfully submit that new claims 26 and 27 are also free of the prior art.

Status of the Claims

Claims 1-4, 6-8, 11, and 24 have been amended.

Claim 1 has been amended such that the limitations of claim 16 have been incorporated into previously presented claim 1. Accordingly, claim 16 has been cancelled. Support for amendments to claim 1 can be found within original claim 16 and throughout the specification, for example, on page 5 at lines 1-2, on page 17 at line 30 through page 18 at line 1, and on page 18, lines 15-16.

Claims 2-4 have been amended to correct grammatical errors. Claim 2 has been amended to replace "molecule" with "molecules" as suggested by the Examiner. Claims 3 and 4 have been amended to replace the term "sequence" with "sequences." Claim 3 has been further amended to indicate that the first and second sequences of interest are different "from each other" to overcome a rejection under 35 U.S.C. § 112, second paragraph, as is further discussed below. Support for this amendment can be found, for example, on page 5 at lines 22-27, and page 6, line 28 through page 7, line 18 of the specification. These amendments to claims 2-4 are purely formal in nature and do not introduce new matter.

Claim 6 has been amended to clarify antecedent basis. Specifically, the phrase "said one additional DNA molecule contains" has been replaced by "said additional DNA molecule(s) contain(s)." This amendment is purely formal in nature and does not introduce new matter.

Claims 7 and 8 have been amended to remove the phrase "and/or an additional" as suggested by the Examiner to overcome a rejection under 35 U.S.C. § 112, second paragraph, as is further discussed below. Claim 8 has been further amended to correct dependency and to clarify the distinction between a "sequence of interest" and a "gene of interest," as suggested by the Examiner to overcome a rejection under 35 U.S.C. § 112, second paragraph, as is further discussed below.

Claim 11 has been amended to correct dependency as suggested by the Examiner and to overcome an objection under 37 C.F.R. 1.75(c). As amended, claim 11 depends on independent claim 1 and has incorporated limitations from claim 9. Support for this amendment can be found, for example, in original claim 9 and throughout the specification, for example, on page 5, lines 24-25, page 7, lines 15-18, page 8, lines 24-27, and page 25, lines 11-15.

Claim 24 has been amended to remove claims to a seed obtained according to the process of claim 1, as suggested by the Examiner to overcome a rejection under 35 U.S.C. § 112, second paragraph, as is further discussed below.

Applicants expressly reserve the right to file one or more continuing applications or take other such measures deemed necessary to protect any claimed subject matter that has been cancelled as a result of these amendments.

Claims 25-27 have been added. Newly added claim 25 recites a seed obtained from the plant of claim 24 comprising the first and second DNA molecules. Support for a seed of a plant obtained according to the process of claim 1 can be found, for example, in original claim 24.

Newly added independent claim 26 claims the subject matter of pending claim 2. Further support for claim 26 can be found throughout the specification, for example on page 4, lines 25-28, page 17 at lines 27-30, and on page 18 at line 32 through page 19, line 1.

Similarly, newly added independent claim 27 claims the subject matter of pending claim 17. Additional support for claim 27 can be found, for example, on page 5 at lines 3-4, on page 17 at line 30 through page 18 at line 1, and on page 18 at lines 16-17 of the specification.

No new matter has been added by way of these amendments.

Claims 1-15, 17-20, and 23-27 are currently pending in the present application.

Reexamination and reconsideration of the application as amended are respectfully requested.

The Rejections of the Claims Under 35 U.S.C. § 112, Second Paragraph Should Be Withdrawn

Claims 3, 6-8, 10, 12, 15, and 24 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite and failing to particularly point out and distinctly claim the subject matter of the invention. Claims 3, 6-8, and 24 have been amended. New claims 25-27 have been added. This rejection is respectfully traversed for the reasons set forth herein and should not be applied to newly added claims 25-27.

The Examiner has noted that it is unclear in claim 3 what the first and second sequences of interest are different from. For clarity, Applicants have amended claim 3 to specify that the first and second sequences of interest are “different from each other.”

Claims 7 and 8 have been rejected for reciting an additional sequence of interest. Accordingly, the phrase “and/or an additional” sequence of interest has been removed from claims 7 and 8.

The Examiner also rejects claims 7 and 8 for failing to clarify the difference between a sequence of interest and a gene of interest. However, Applicants respectfully submit that the difference between a sequence of interest and a gene of interest has been set forth within the specification. For example, see page 5, lines 22-27, which states that the sequences of interest may contain a gene to be expressed (i.e., a gene of interest). The specification further states that the first and second sequences of interest may each contain a fragment of a gene of interest, whereby the gene is assembled in the integration sequence. In addition, the specification describes (see page 7, lines 4-5) the embodiment wherein the first and second sequences of interest each contain a gene of interest, forming an integration sequence comprising two genes of interest. Furthermore, within Embodiment 1, on page 25, lines 18-19, the specification states that the sequence of interest may include a marker gene, along with additional gene(s) of interest. A sequence of interest is defined within the specification as a modified or newly introduced sequence of any length (see page 13, line 10 of the specification). A gene is defined as a nucleotide sequence encoding all elements that are required to secure function (i.e. independent

expression; see page 12, lines 34-35). Therefore, a sequence of interest does not necessarily contain a gene of interest, as it may be any nucleotide sequence. However, a sequence of interest may contain one or more genes of interest or fragments thereof.

Claim 6 has been rejected for lack of antecedent basis for the phrase “said one additional DNA molecule.” Claim 6 has been amended to recite “said additional DNA molecule(s),” as presented in claim 5, from which claim 6 depends.

The Examiner has rejected claim 24 because the process of claim 1, from which it depends, does not produce the seeds of claim 24. Applicants have deleted the recitation of a seed in claim 24 and have added claim 25 that depends from claim 24 and recites a seed obtained from said plant of claim 24.

Claim 10 has been rejected due to its indefinite recitation of the phrase “wherein expression of said gene of interest includes RNA trans-splicing.” The Examiner contends that the term “includes” makes it unclear if trans-splicing is actually involved. However, Applicants respectfully submit that the term “includes” is clear in its meaning. In fact, M.P.E.P. § 2111.03 states that the term “including” is synonymous with the term “comprising.”

In view of the amendments and remarks, it is submitted that the rejection of claims 3, 6-8, 10, 12, 15, and 24 under 35 U.S.C. § 112, second paragraph, should be withdrawn.

The Rejections of the Claims Under 35 U.S.C. § 102 Should Be Withdrawn

Claims 1, 3-8, 12, 14-15, 18-20, and 23-24 are rejected under 35 U.S.C. § 102(b) as being anticipated by Herz *et al.* (WO 02/055651). Claims 1, 3, 6-8, and 24 have been amended. New claims 25-27 have been added. This rejection is respectfully traversed for the reasons set forth herein and should not be applied to newly added claims 25-27.

Independent claim 1 has been amended to recite a process of generating transgenic plants or plant cells transformed on their plastome, comprising: a) introducing into plant plastids a first

DNA molecule and a second DNA molecule, wherein said first DNA molecule contains a first region homologous to a region of the plastome for directing plastome integration and a first sequence of interest, wherein said first DNA molecule contains only one region homologous to a region of the plastome for directing plastome integration, and said second DNA molecule contains a second region homologous to a region of the plastome for directing plastome integration and a second sequence of interest, whereby a sequence segment of said first sequence of interest is homologous to a sequence segment of said second sequence of interest, and b) selecting transformants having an integration sequence stably integrated in the plastome, whereby said integration sequence contains at least a portion of said first and at least a portion of said second sequence of interest as a continuous sequence.

The Examiner has stated that the prior art fails to teach or suggest the claimed method of claim 16 that recites the limitation that the first DNA molecule contains only one region homologous to a region of the plastome. For this reason, the Examiner has not rejected claim 16 under either 35 U.S.C. § 102 or 103. As amended, claim 1 incorporates this limitation of claim 16, making amended independent claim 1 and claims dependent therefrom free of the prior art, including *Herz et al.*

In addition, Applicants have presented new independent claims 26 and 27, which are identical in scope to pending claims 2 and 17, respectively. Applicants respectfully acknowledge that the Examiner has determined claims 2 and 17 are free of the prior art. Therefore, Applicants submit that new claims 26 and 27 are also free of the prior art.

In view of the amendments and remarks, it is submitted that the rejection of claims 1, 3-8, 12, 14-15, 18-20, and 23-24 under 35 U.S.C. § 102(b) should be withdrawn and should not be applied to newly added claims 25-27.

The Rejections of the Claims Under 35 U.S.C. § 103 Should Be Withdrawn

Claims 1, 3-9, 12-15, 18-20, and 23-24 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Herz *et al.* (WO 02/055651). These claims are also rejected as being unpatentable over Herz *et al.* (WO 02/055651) in view of Maliga *et al.* (1995, U.S. Patent No. 5,451,513). Claims 1, 3, 6-8, and 24 have been amended. New claims 25-27 have been added. This rejection is respectfully traversed for the reasons set forth herein and should not be applied to newly added claims 25-27.

Independent claim 1 has been amended to recite a process of generating transgenic plants or plant cells transformed on their plastome, comprising: a) introducing into plant plastids a first DNA molecule and a second DNA molecule, wherein said first DNA molecule contains a first region homologous to a region of the plastome for directing plastome integration and a first sequence of interest, wherein said first DNA molecule contains only one region homologous to a region of the plastome for directing plastome integration, and said second DNA molecule contains a second region homologous to a region of the plastome for directing plastome integration and a second sequence of interest, whereby a sequence segment of said first sequence of interest is homologous to a sequence segment of said second sequence of interest, and b) selecting transformants having an integration sequence stably integrated in the plastome, whereby said integration sequence contains at least a portion of said first and at least a portion of said second sequence of interest as a continuous sequence.

The Examiner has stated that the prior art fails to teach or suggest the claimed method of claim 16, which includes the limitation that the first DNA molecule contains only one region homologous to a region of the plastome. For this reason, the Examiner has not rejected claim 16 under either 35 U.S.C. § 102 or 103. As amended, claim 1 incorporates this limitation of claim 16, making amended independent claim 1 and claims dependent therefrom free of the prior art, including Herz *et al.* and Maliga *et al.*, and nonobvious.

In addition, Applicants have presented new independent claims 26 and 27, which are identical in scope to pending claims 2 and 17, respectively. Applicants respectfully acknowledge that the Examiner has determined claims 2 and 17 are free of the prior art. Therefore, Applicants submit that new claims 26 and 27 are also free of the prior art.

In view of the amendments and remarks, it is submitted that the rejection of claims 1, 3-9, 12-15, 18-20, and 23-24 under 35 U.S.C. § 103(a) should be withdrawn and should not be applied to newly added claims 25-27.

The Objections to the Claims Should Be Withdrawn

Claim 2 is objected to due to a grammatical error. The phrase “molecule are” has been replaced with “molecules are,” thereby correcting the error.

Claim 11 is objected to under 37 C.F.R. § 1.75(c), as being of improper dependent form. Applicants have amended the claim to depend from claim 1. Applicants submit that as amended, claim 11 complies with 37 C.F.R. § 1.75(c).

Claims 2, 16, and 17 are objected to as being dependent upon a rejected base claim, claim 1. The Examiner states that these claims would be acceptable if rewritten in independent form. Applicants have cancelled claim 16 and claim 1 has been amended to incorporate the limitations of claim 16. In addition, Applicants have provided new independent claims 25 and 26, which claim the subject matter of pending claims 2 and 17, respectively. Accordingly, Applicants submit that amended claim 1 and claims depending therefrom (i.e., claims 2-15, 17-20, and 23-25), as well as newly added claims 26 and 27 are free from the prior art.

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CONCLUSION

In view of the above amendments and remarks, Applicants submit that the rejections of the claims under 35 U.S.C. §§ 102, 103, and 112, second paragraph, are overcome. Objections to the claims, specification, and drawings are also overcome. Applicants respectfully submit that this application is now in condition for allowance. Early notice to this effect is solicited.

If in the opinion of the Examiner a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 C.F.R. § 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,

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